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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,933	04/01/2004	Craig B. Williams	125059	2932
23413	7590	03/21/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			HOFFBERG, ROBERT JOSEPH	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/708,933	WILLIAMS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Robert J. Hoffberg	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/1/04</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

***Detailed Action***

***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: #360. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 13, 15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinney et al. (US 5,311,392).

With respect to Claim 13, Kenney et al. teaches a method of protecting an electrical circuit (Fig. 2, #113) in electrical communication with an electrical source (Col. 1, line 15), the method comprising: sensing a voltage drop (Col. 5, line 22) across a resistive element (Col. 5, line 18) disposed in a separable conduction path (Fig. 2, #202) connected in series with the electrical circuit; in response to the sensed voltage drop, calculating a value (Col. 3, line 38) representative of the current in the conduction path; comparing the calculated value to a threshold value (Col. 5, line 65+); and in response to the calculated value being in excess of the threshold value, tripping an operating mechanism (Fig. 2, #230 and #202) and separating (Col. 6, lines 2-3) the separable conduction path.

With respect to Claim 15, Kinney et al. teaches the threshold value is a characteristic curve (see Fig. 3A) that is a function of current and time.

With respect to Claim 20, Kinney et al. further teaches associating the calculated value with at least one of a plurality of time-current characteristic curves (Fig. 3a and 3b) stored in a memory (Col. 7, lines 9+, Col. 6, line 38 and Col. 11, line 10) prior to determining whether a trip threshold has been exceeded.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gryctko (US 4,064,469) in view of Kinney et al. (US 5,311,392).

With respect to Claim 1 and 2, Gryctko teaches an apparatus for providing electrical protection to a protected circuit (Col. 1, lines 9, protection for a load) in electrical communication with an electrical source (Col. 1, line 9, load), the apparatus comprising: a housing (Fig. 5, #35); a separable conduction path (Col. 4, line 59, separate) in series connection with the protected circuit; an operating mechanism (Fig. 5, #21) in operable communication with the separable conduction path. Gryctko fails to teach a thermal element and an electronic trip unit. Kinney et al. teaches a thermal element or resistive element (Col. 5, line 18, resistor) in thermal communication with the separable conduction path; and an electronic trip unit (Fig. 2, #116) in signal communication with the thermal element and in operable communication with the operating mechanism; wherein the electronic trip unit is adapted to sense a voltage drop (Col. 5, lines 22-23) across the thermal element and to trip the operating mechanism (Fig. 2, #202) in response to the sensed voltage drop being in excess of a first trip threshold. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Gryctko with that of Kinney et al. for the purpose of providing an intelligent circuit breaker apparatus to monitor multiple operating conditions and to be externally programmed.

With respect to Claim 11, Gryctko in view of Kinney et al. teaches the apparatus of the claim 1 above, but fails to teach a first trip threshold is adjustable subsequent to the apparatus being installed in an application. Kinney et al. teaches that a first trip

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threshold is adjustable (Col. 6, line 38) subsequent to the apparatus being installed in an application. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Gryctko with that of Kinney et al. for the purpose of providing a user configurable protection device to allow a single device to be used for multiple uses through its lifespan.

With respect to Claim 12, Gryctko in view of Kinney et al. teaches the apparatus of the claim 1 above, but fails to teach that the electronic trip unit is adapted to receive electrical power from the line voltage of the electrical source. Kinney et al. further teaches that the electronic trip unit is adapted to receive electrical power (Col. 5, lines 34-35) from the line voltage of the electrical source. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Gryctko in view of Kinney et al. to minimize cost by using the electrical power already available.

5. Claims 3-5 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gryctko (US 4,064,469) in view of Kinney et al. (US 5,311,392) as applied to claim 1 above, and further in view of Shaffer (US 3,398,325).

With respect to Claim 3, Gryctko in view of Kinney et al. teaches the apparatus of the above claims, but fails to a bimetal resistive element. Shaffer teaches the resistive element comprises a bimetal (Col. 1, line 35). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Gryctko in view of Kinney et al. with that of Shaffer for the purpose of providing an adjustable mechanical means to interrupt the protected circuit.



With respect to Claim 4, Gryctko in view of Kinney et al., and further in view of Shaffer teach the apparatus of the above claims. Kinney et al. further teaches an apparatus providing two trip thresholds (Col. 1, lines 16-17). Shaffer further teaches a bimetal resistive element. Schaffer further teaches the thermal element is arranged to mechanically trip (Col. 1, line 38) the operating mechanism in response to an overcurrent condition (Col. 1, line 24) in the protected circuit being in excess of a trip threshold. With respect to Claim 5, Kinney et al. teaches the first trip threshold (Fig. 3a, point A) is representative of a first current level; and the second trip threshold (Fig. 3a, point D) is representative of a second current level that is greater than (see Fig. 3A) the first current level. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Gryctko in view of Kinney et al. with that of Shaffer for the purpose of providing an multiple thresholds to protect under different operating conditions, one of which is a mechanical safeguard to an electronic system.

With respect to Claim 8, Gryctko in view of Kinney et al. and further in view of Shaffer teaches the apparatus of the above claims, but fails to teach that the bimetal and electronic tripping units have two steady state ratings. Shaffer further teaches the bimetal is adapted to conduct a first steady state electrical current having a first steady state rating (Col. 1, line 35, calibrated at a 1<sup>st</sup> value) and a second steady state electrical current having a second steady state rating (Col. 1, line 35, calibrated at a 2<sup>nd</sup> value); and the electronic trip unit (Fig. 1, #24) is configurable to provide an X-rating of the apparatus equal to the first steady state rating (Col 3, line 75, instantaneous), the

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second steady state rating (Col. 3, line 75 time delayed), or both (Col. 3, line 75, instantaneous and/or time delayed) steady state ratings. While Shaffer fails to disclose that the second steady state rating being two-times the first steady state rating, it would be obvious that the ratio could be 2 to 1 or any other value to allow the apparatus to safeguard the protected circuit. With respect to Claims 9-10, while Shaffer fails to disclose that the third and forth steady state ratings being three or four times the first steady state rating, it would be obvious that the ratio could be 3 to 1, 4 to 1 or any other value to allow the apparatus to safeguard the protected circuit. Shaffer further teaches the electronic trip unit is configurable to provide an X-rating of the apparatus equal to the third or fourth steady state rating (Col. 3, lines 29-32). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Gryctko in view of Kinney et al. and further in view of Shaffer for the purpose of providing circuit interruption components that are universal over a series of steady state ratings.

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gryctko (US 4,064,469), in view of Kinney et al. (US 5,311,392) and further in view of Shaffer (US 3,398,325) as applied to the above claims, further in view of Dougherty (US 4,937,757) and further in view of Arenz et al. (US 2005/0162796).

With respect to Claim 6, Gryctko in view of Kinney et al., further in view of Shaffer teach the apparatus of the above claims. They fail to teach a magnetic trip unit. Dougherty ('757) teaches a magnetic trip unit (Fig. 2, #14) wherein the magnetic trip unit is arranged to mechanically trip (Fig. 2, #14 opens #1) the operating mechanism in



response to an overcurrent condition in the protected circuit being in excess of a third trip threshold (see Fig. 1). Dougherty ('757) fails to teach a magnetic unit in signal communication and in operable communication with the operating mechanism. Arenz et al. teaches a magnetic trip unit (Fig. 1, #8, and Col. 2, line 8) in signal communication (Fig. 1, #Ui) with the separable conduction path and in operable communication with the operating mechanism (Fig. 1, #2). With respect to Claim 7, Dougherty ('757) teaches the third trip threshold (Fig. 1, #11) is representative of a third current level that is greater than (Fig. 1, #11 above #10) the second current level (Fig. 1, #10). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Gryctko in view of Kinney et al. and further in view of Shaffer with that of Dougherty ('757) and further in view of Arenz et al. for the purpose of providing a third means of breaking the circuit that provides redundancy and operates with different performance characteristics.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinney et al. (US 5,311,392) as applied to claim 14 above, in view of Shaffer (US 3,398,325) and further in view of Dougherty et al. (US 6,466,023).

With respect to Claim 14, Kinney et al. teaches the method of claim 13. Kinney et al. fails to teach the resistive element comprises a bimetal and determining an ambient temperature. Schaffer teaches a resistive element comprises a bimetal (Col. 1, line 35). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Kinney et al. with that of Shaffer for the purpose of providing an adjustable mechanical means to interrupt the protected circuit.

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Dougherty et al. ('023) teaches a determining an ambient temperature (Fig. 1, #69); wherein the calculating a value representative of the current (Col. 3, lines 46-47, voltage divided by resistance equals current) in the conduction path (Fig. 1, power lines) further comprises compensating for that portion of the sensed voltage drop that is a function of the ambient temperature (Col. 3, lines 46-47). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Kinney et al. with that of Dougherty et al. ('023) for the purpose of providing an compensation for changes in resistance due to temperature.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinney et al. (US 5,311,392) as applied to claim 13 above, in view of Dougherty et al. (US 6,466,023).

With respect to Claim 16, Kinney et al. teaches the method of claim 13. Kinney et al. fails to teach a characteristic curve that is a function of temperature and time. Dougherty et al. ('023) teaches the threshold value is a characteristic curve that is a function of temperature (Col. 3, line 41, differential temperature) and time (Col. 4, line 39). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Kinney et al. with that of Dougherty et al. ('023) for the purpose of providing an compensation for changes in resistance due to temperature.

With respect to Claim 17, Kinney et al. teaches the method of claim 13 and further teaches heat generated by the current in the resistive element (energy is based on a voltage [Col. 5, lines 22-23] and resistance [Col. 5, line 18]). Kinney et al. fails to

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teach a calculated value that is a function of the ambient temperature and heat transfer from the conduction path. Dougherty et al. ('023) teaches the threshold value is a characteristic curve that is a function of temperature (Col. 3, line 41, differential temperature) and heat (Col. 4, line 26) transfer from the conduction path (Col. 4, lines 39-40). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Kinney et al. with that of Dougherty et al. ('023) for the purpose of providing an compensation for changes based in resistance and correspondingly the heat dissipation due to changes in temperature.

With respect to Claim 18, Kinney et al. in view of Dougherty teaches the method of claim 17. Dougherty et al. ('023) further teaches that the calculated value is a function of the temperature (Fig. 1, #66) of the resistive element (Fig. 1, #57). The resistive element inherently has a material characteristic comprising an electrical resistivity, a temperature coefficient of resistance, a specific heat, a thermal conductivity, or any combination of material characteristics comprising at least one of the foregoing. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the apparatus of Kinney et al. with that of Dougherty et al. ('023) for the purpose of providing a compensation for temperature changes based the material composition of the resistive element.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinney et al. (US 5,311,392) as applied to claim 13 above.

With respect to Claim 19, Kinney further teaches updating an accumulator (Fig. 4a, #420) with a timed update of the calculated value; and resetting the accumulator to

an initial setting (Col. 11, lines 54-55). While Kinney fails to disclose a reset signal, it would be obvious to one of ordinary skill in the art at the time of the invention was made for the program would have to have a means to begin in its execution starting at Fig. 4a, #410.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert J. Hoffberg whose telephone number is (571) 272-2761. The examiner can normally be reached on 8:30 AM - 4:30 PM Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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